WESTERN ENGINEERING

Vol. 4, No. 6 SAN FRANCISCO, JUNE, 1914 $3 per year 25c per copy

ANNOUNCEMENT

Beginning with the July issue, ***Western Engineering*** will be published in the standard size that has been adopted by nearly all class publications — namely, 9 by 12 inches.

This change is made for the convenience of you, our subscribers and advertisers, as uniformity in size of journals of this character greatly facilitates filing for reference and materially lessens the labor and expense of preparing advertisements.

The increase in display space from 5 by 8 inches to 7 by 10 inches will make ***Western Engineering*** pictorially even more attractive than before.

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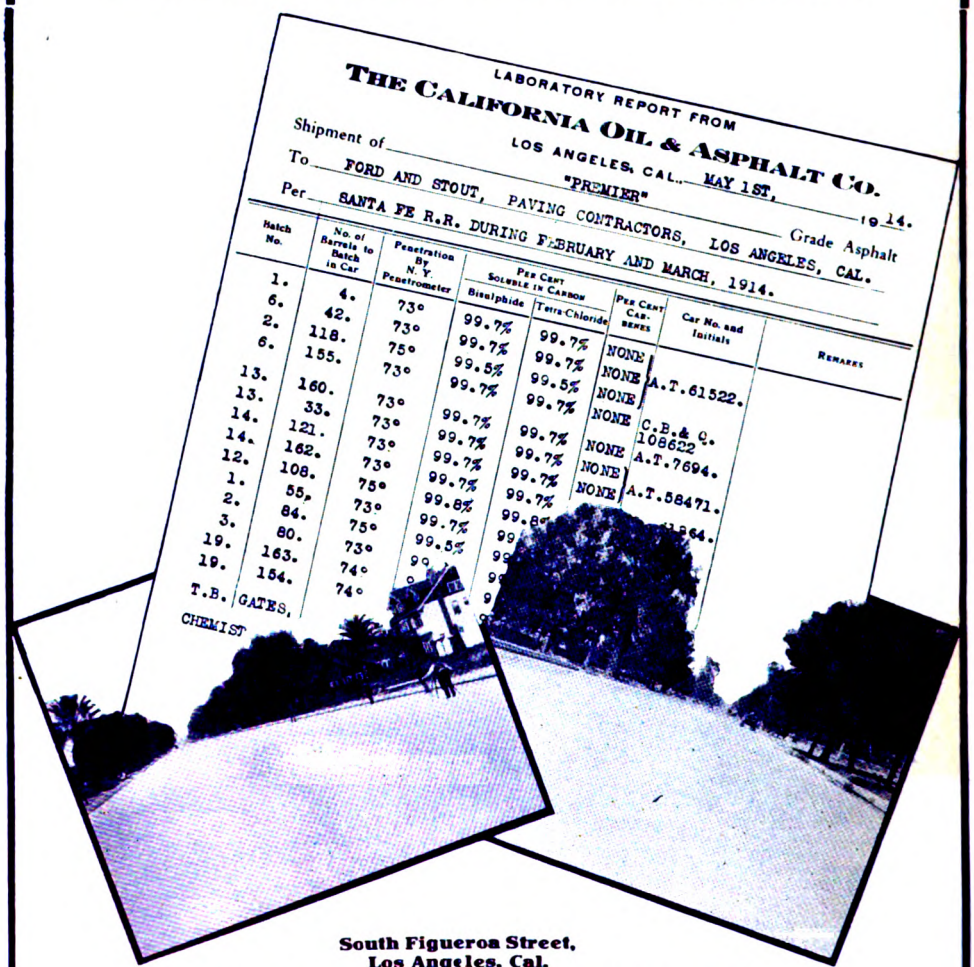
"PREMIER" Asphalt used exclusively in 1,170,000 square feet

of sheet asphalt pavement on South Figueroa Street, Los Angeles, laid by Ford & Stout, Contractors.

Over fifty carloads of "PREMIER" Asphalt, of uniform penetration and freedom from carbenes, were used in constructing this FOUR MILES of perfect pavement, 67 feet wide between curbs.

Samples furnished Engineers and Contractors on application.



LABORATORY REPORT FROM
THE CALIFORNIA OIL & ASPHALT CO.
Shipment of LOS ANGELES, CAL., MAY 1ST, 1914.
To "PREMIER" Grade Asphalt
Per FORD AND STOUT, PAVING CONTRACTORS, LOS ANGELES, CAL.
SANTA FE R.R. DURING FEBRUARY AND MARCH, 1914.

Batch No.	No. of Barrels to Batch in Car	Penetration By N.Y. Penetrometer	Per Cent Soluble in Carbon Bisulphide	Per Cent Soluble in Carbon Tetra-Chloride	Per Cent Carbenes	Car No. and Initials	Remarks
1.	4.	73°	99.7%	99.7%	NONE		
6.	42.	73°	99.7%	99.7%	NONE	A.T.61522.	
2.	118.	75°	99.5%	99.5%	NONE		
6.	155.	73°	99.7%	99.7%	NONE		
13.	160.	73°	99.7%	99.7%	NONE	C.B.& Q. 108622	
13.	33.	73°	99.7%	99.7%	NONE	A.T.7694.	
14.	121.	73°	99.7%	99.7%	NONE		
14.	162.	73°	99.7%	99.7%	NONE	A.T.58471.	
12.	108.	75°	99.8%	99.7%	NONE		
1.	55.	73°	99.7%	99.5%			
2.	84.	75°	99.5%	99			
3.	80.	73°	99				
19.	163.	74°					
19.	154.	74°					

T.B. GATES, CHEMIST

South Figueroa Street, Los Angeles, Cal.

90,000 sq. yds. laid with "PREMIER" Asphalt, April 1914.

40,000 sq. yds. laid with "PREMIER" Asphalt, March 1912.

"PREMIER" Asphalt is manufactured only by

The California Oil and Asphalt Company, Los Angeles

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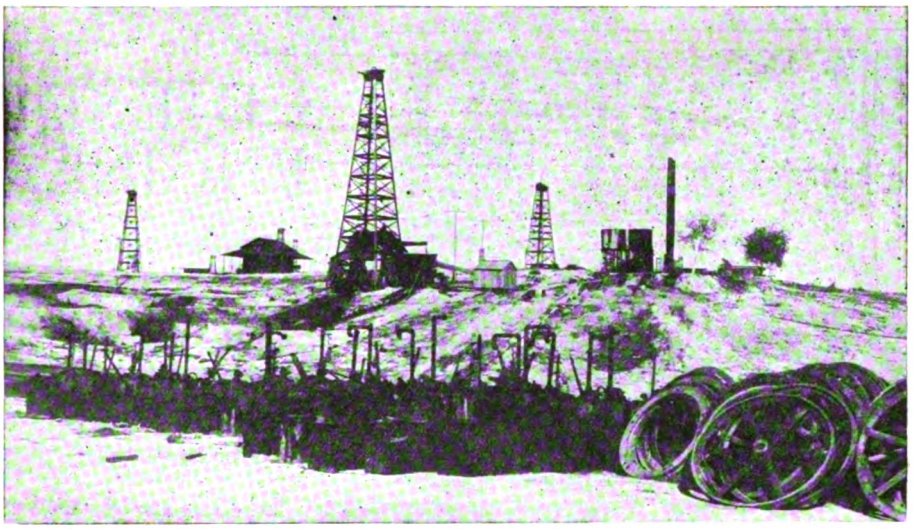

This illustration shows a score or more of steam engines that were scrapped and replaced by Westinghouse electric motors.

You Can Pump More Oil at Less Cost With Westinghouse Electric Motors

The greater reliability, flexibility, ease of operation and continuity of service of Westinghouse electric motor drive, together with the low depreciation of electrical equipment makes it possible to pump more oil at less cost.

The following characteristics of Westinghouse electric motors for oil well service assist in obtaining this desired result:

High efficiency on pumping duty.

Always ready for service.

Ability to reverse quickly when pulling a well, or when bailing and cleaning.

Ability of single speed motor to double the speed for pulling out the rods and tubing by means of lagging up the central portion of the bull wheel shaft.

Strong, rugged and simple construction. Repairs are seldom needed, but can be made very readily at little expense.

The above are only a few of the desirable features of these motors. Full information can be obtained by writing to our nearest office.

Westinghouse Electric & Mfg. Company

East Pittsburgh, Pa.

San Francisco, Cal.
Los Angeles, Cal.
Kansas City, Mo.
Dallas, Texas

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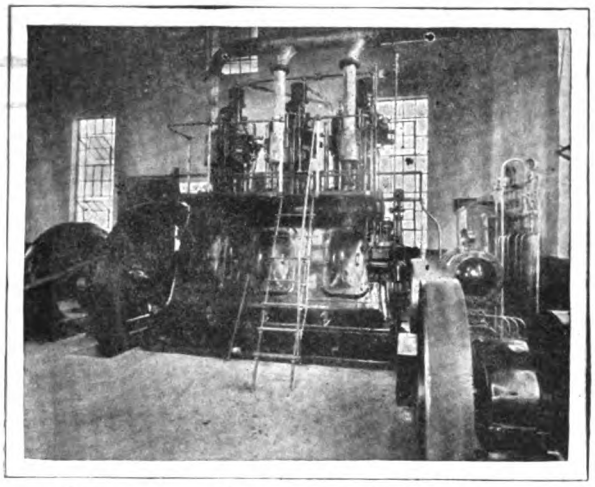
100 H. P. Hours, on 6 to 6.2 Gallons of Fuel Oil—



this is the record of

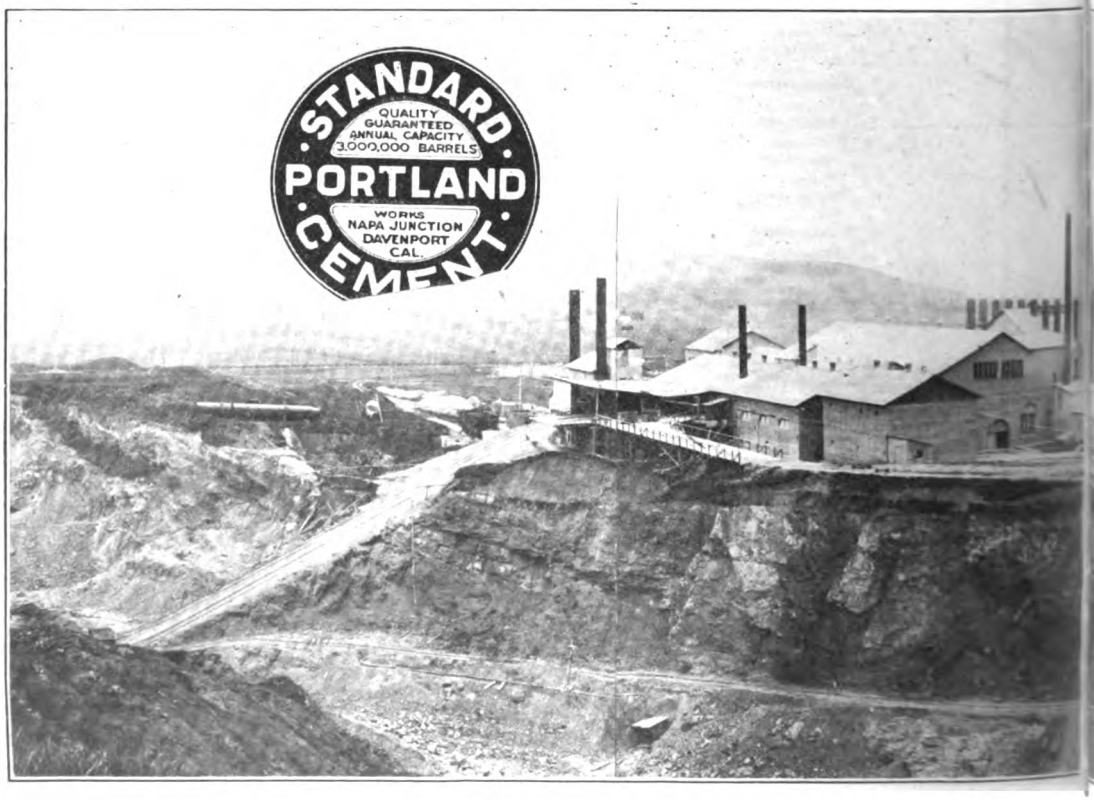
3 DIESEL ENGINES

in cement mills in Oklahoma and Texas.

¶ The president of these mills says that our engines have the steam engine beaten the "traditional seven ways" as to RELIABILITY, and that they are as far ahead of the steam plant as steam was ahead of the windmill. And his DIESELS have eliminated incessant boiler scale trouble. He tells all about it in ROCK PRODUCTS—we issue a reprint. Send for it.

BUSCH-SULZER BROS.-DIESEL ENGINE COMPANY

ST. LOUIS 423 Rialto Bldg., San Francisco U. S. A.



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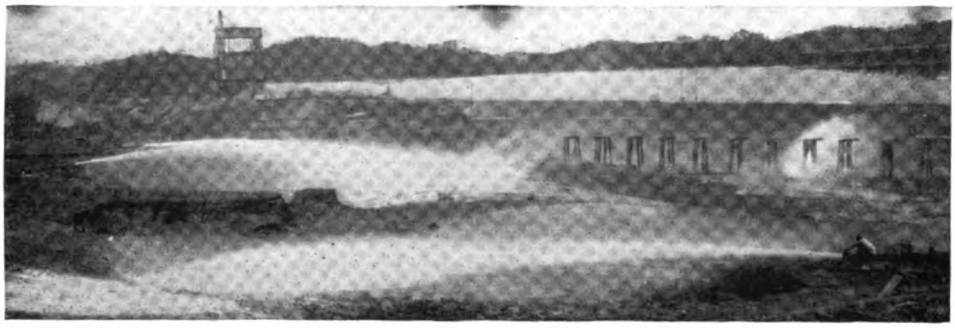
At Miraflores (Panama Canal) approximately 11,000,000 cubic yards of earth were placed at a cost of 29.85c. per cubic yard, by using Hydraulic Giants operated under pressure by electrically-driven pumps, and was an important as well as an interesting factor in the excavating of this waterway.

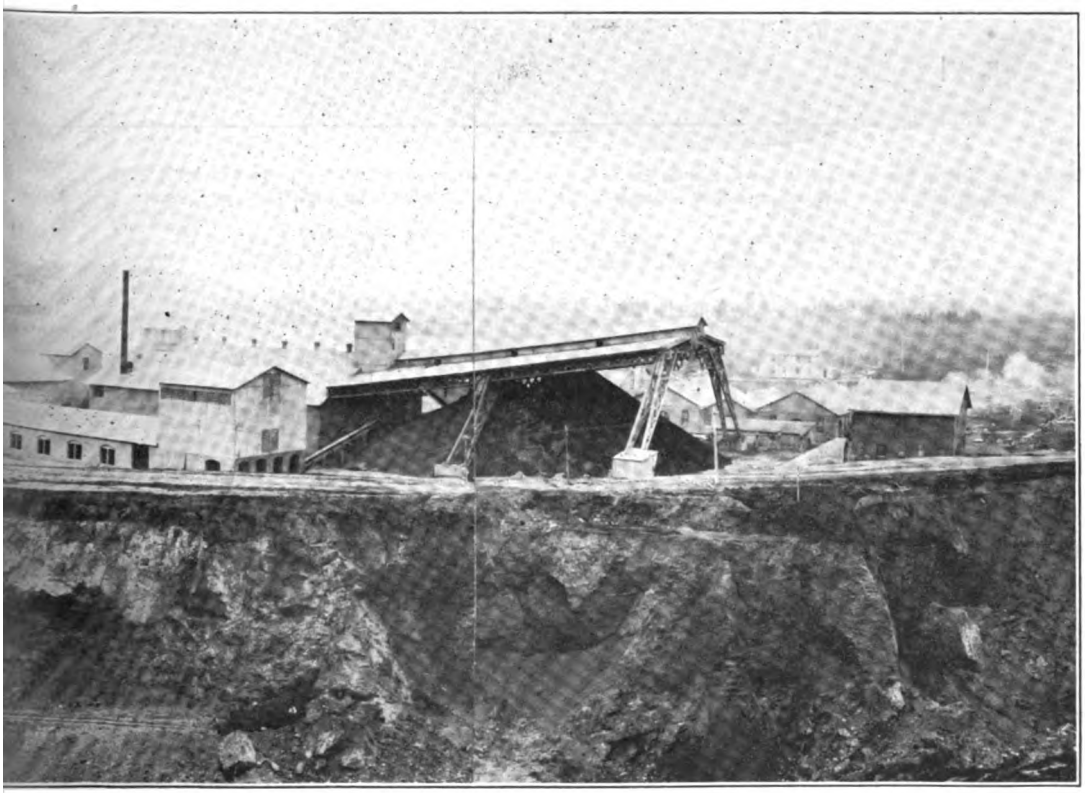


"HENDY" HYDRAULIC GIANTS

used in this work were specified by U S. Government Engineers.

Many costly engineering problems have been solved by the saving made in employing water under pressure in lieu of other methods.

JOSHUA HENDY IRON WORKS, San Francisco, Cal., U.S.A.



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There is a Vast Difference

Between the ready-made makeshift and made-to-order perfection. No two men are exactly alike, nor are two sets of water power conditions ever exactly the same.

The line of demarcation between success or failure is often drawn when the apparatus is selected.

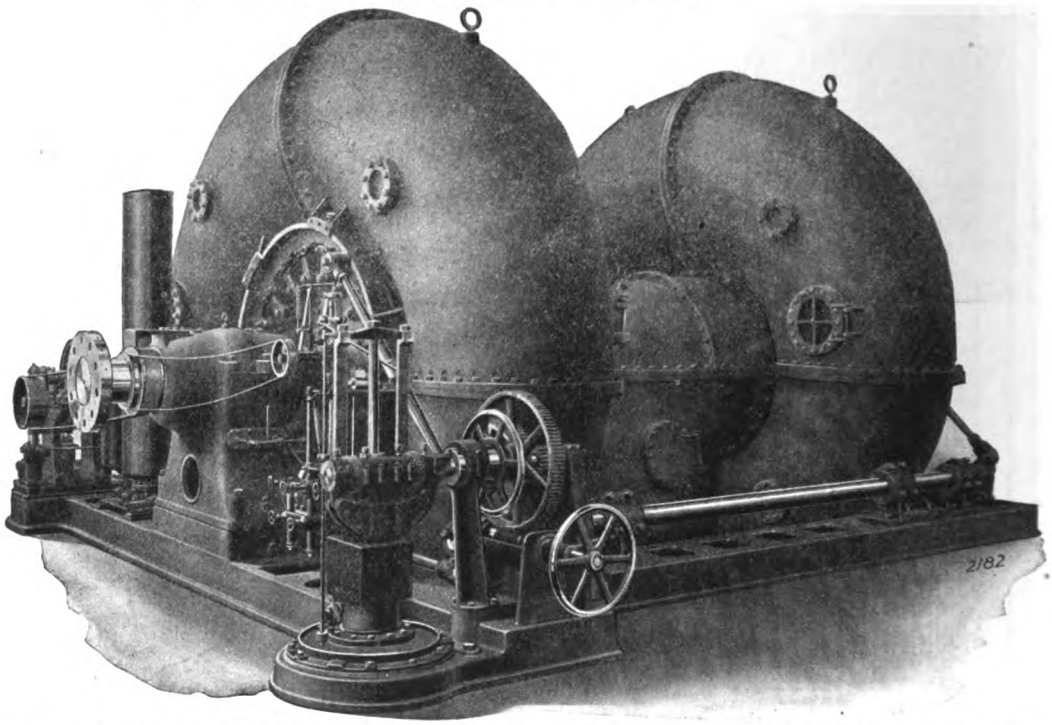

Figure 2182. One of three 6000 H. P. Victor Francis Turbines, operating under 80-foot head at a speed of 240 R. P. M.
Designed and built for The Portland Water Power and Electric Transmission Company, Estacada, Oregon

A VICTOR FRANCIS TURBINE

is designed to make the best possible use of conditions as they exist.

The experience of more than fifty years and a long record of successful installations in most countries of the world are the reasons why VICTOR FRANCIS turbines are admitted to be different from the makeshift kind.

Our Bulletin 708 contains information of value to you. May we send it?

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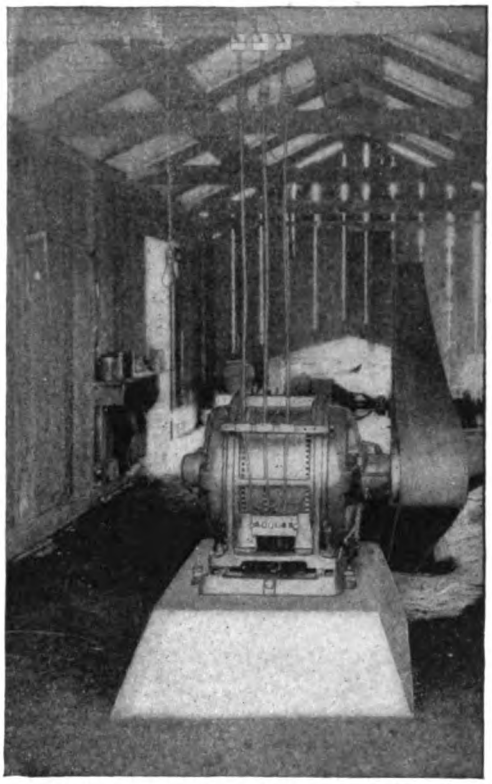

G-E Motor Pumping 23 Wells by "Jack Drive."

Low cost per well with G-E motor-driven jack rigs

Old oil wells can be given a new lease of life with G-E motor drive. By connecting a number of wells to a single source of power they can be run as a paying proposition long after they have ceased to yield a profit when driven singly.

Below is the cost of operating 58 wells by steam on the "beam" and the same wells on three motor driven "jacks."

	Per month.
Labor (6 boiler men)	$ 600
Fuel oil at 35c a barrel	1827
Lubricating oil, packing, waste, etc	234
Saving in pipe line and boiler maintenance	386
Total	$3047
Cost of electric energy at 1c per kw. hour	456
Saving effected	$2591

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Largest Electrical Manufacturer in the World

General Office: Schenectady, N.Y.

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For Texas, Oklahoma and Arizona business refer to Southwest General Electric Company (formerly Hobson Electric Co.), Dallas, El Paso, Houston and Oklahoma City.

Motor Agencies in all Large Cities and Towns. 4554

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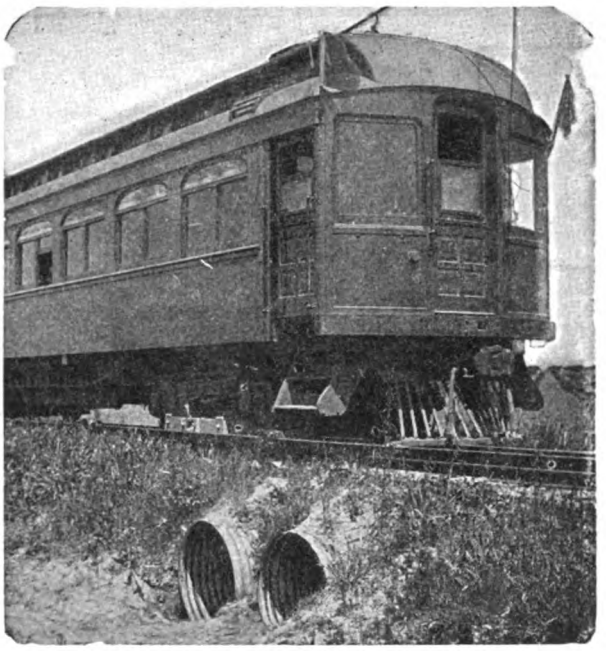

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Convenient Reliable Lasting

Constitute a solution of most of the problems of railway and highway drainage.

In the form of inverted siphons, they are invaluable for depressed crossings in irrigation work.

This is the **purest** and most durable iron on the market.

Write the Nearest Manufacturer for Particulars and Prices on American Ingot Iron Corrugated Culverts, Plates, Sheets, Roofing and Formed Products.

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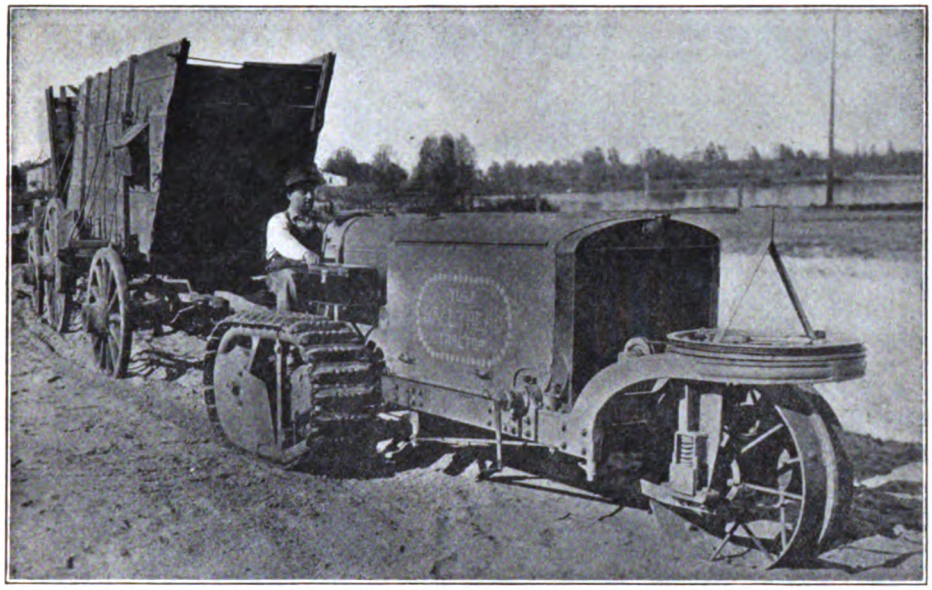

THE YUBA BALL TREAD TRACTOR

Just as the automobile has come to be adapted to trucking and long distance hauling, so is the TRACTOR coming to be used on the road, in the factory yard, on mountain grades or hillsides where great power is required and other means inadequate.

The Yuba Ball Tread Tractor

has the power of twelve and eighteen horses, compressed until it occupies only as much road space as two horses.

There is a booklet showing The Yuba doing its work under unusual conditions. Send for the booklet.

THE YUBA CONSTRUCTION COMPANY

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433 California Street, San Francisco

Works: Marysville, California

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Star Asphaltum

and

Petrolastic Cement

These are refinery products—not merely natural grades.

They are run to positive specified standards, and thus absolute uniformity is assured.

They give the best possible results in

Paving	Water Proofing	Building Paper and Felt
Roofing	Coating Pipe	Protecting River Levees
Insulating	Paint Making	Protecting Canal Levees
Shop Floors	Tennis Courts	Preserving Posts and Piles
Paving Blocks	Allaying Dust	Sprinkling Streets and Roads

Hard Grades Shipped in Barrels
Soft Grades Shipped in Barrels and Tank Cars

For Particulars and Prices Write

Standard Oil Company

(California)

Standard Oil Building San Francisco

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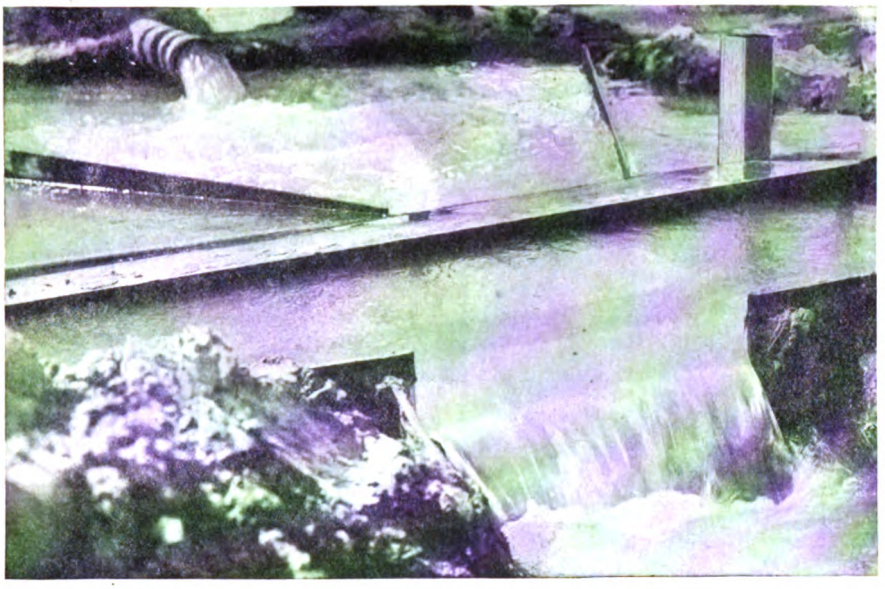


"American" Centrifugal Pumps Are Always on the Honor List

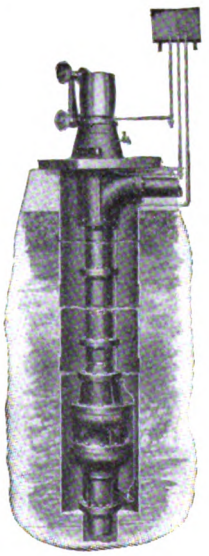
Nearly every state in the West has issued some publication describing its irrigation development.

Some of these are biennial reports of state engineers, some are booklets issued by state agricultural departments and some are bulletins published by agricultural colleges.

In several of these the names of the manufacturers of the pumps in the installations described are not mentioned.

But investigate and you will find in every one of these publications among the plants giving highest efficiency and showing greatest economy are installations of "American" Centrifugal Pumps. You will find no other make of pump described in *all* of these publications.

"American" Centrifugals do not depend for their popularity on local favor. It is not necessary for us to make extravagant claims for their extensive use. The records in publications other than those issued by this company show it.



Bulletin 127 gives more practical information relative to irrigation pumping than any other booklet published. Catalog 132 describes about 50 styles of "American" Centrifugals. Write for them.

The American Well Works

General Office and Works: Aurora, Ill.
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BOILERS	
Fulton Engine Works	11
Hendy Iron Works, Joshua	5
Moore, Chas. C. & Co., Engineers	6
Wheeler, F. R.	19
CARRIERS	
Ruggles Machine Co.	18
CEMENT-GUN	
Pacific Cement-Gun Co.	—
CEMENT, PETROLASTIC	
Standard Oil Co.	12
CEMENT, PORTLAND	
Cowell Lime & Cement Co.	—
Riverside Portland Cement Co.	Back Cover
Santa Cruz Portland Cement Co.	—
Standard Portland Cement Corp.	4 and 5
COMPRESSORS, AIR	
American Well Works	13
Hendy Iron Works, Joshua	5
Moore, Chas. C. & Co., Engineers	6
CONTRACTORS' MACHINERY	
General Electric Co.	7
Hendy Iron Works, Joshua	5
Westinghouse Electric & Mfg. Co.	3
CONVEYING MACHINERY	
Hendy Iron Works, Joshua	5
Ruggles Machine Co.	18
CRANES	
Hendy Iron Works, Joshua	5
CRUSHERS	
Hendy Iron Works, Joshua	5
CULVERTS, CORRUGATED	
Corrugated Culvert Companies	8

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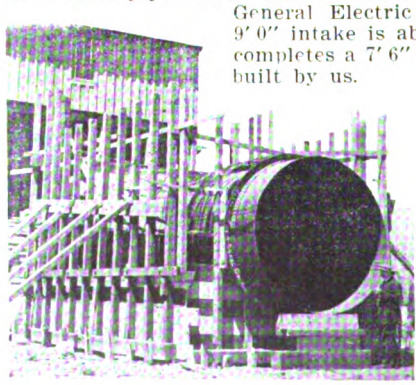

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	Page.
DREDGES HYDRAULIC	
Yuba Construction Co.	9
DREDGE PUMPS	
American Well Works.	13
Jackson Iron Works, Byron.	16
Krogh Pump Mfg. Co.	17
Yuba Construction Co.	9
DUST PREVENTIVES	
California Oil & Asphalt Co.	2
Standard Oil Co.	12
ELECTRICAL MACHINERY	
General Electric Co.	7
Westinghouse Electric & Mfg. Co.	3
ELEVATING MACHINERY	
Robins Conveying Belt Co.	14
ENGINEERS	
See pages 10 and 11.	
ENGINES, DIESEL	
Busch-Sulzer Bros.—Diesel Engine Co.	4
Lyons Atlas Co.	—
Moore, Chas. C. & Co., Engineers.	6
ENGINES, STEAM	
Hendy Iron Works, Joshua.	5
Kerr Turbine Co.	19
Moore, Chas. C. & Co., Engineers.	6
Wheeler, F. R.	19
EXCAVATING CONTRACTOR	
Ware, R. F.	15
GENERATORS	
General Electric Co.	7
Westinghouse Electric & Mfg. Co.	3
GIANTS	
Hendy Iron Works, Joshua.	5
Pelton Water Wheel Co.	17
GOVERNORS, WATER WHEEL	
Hendy Iron Works, Joshua.	5
Pelton Water Wheel Co.	17
GUNITE	
Pacific Cement-Gun Co.	—

(Continued on page 16.)

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BUYERS' DIRECTORY

(Continued from page 15.)

Page.

HOISTING MACHINERY
Fulton Engine Works..... 11
Ruggles Machine Co..... 18

HYDRAULIC SUPPLIES
Corrugated Culvert Companies..... 8
Hendy Iron Works, Joshua..... 5
Krogh Pump Mfg. Co..... 17
Western Pipe & Steel Co..... 14

MOTORS
General Electric Co..... 7
Westinghouse Electric & Mfg. Co..... 3

PAVING MATERIALS
California Oil & Asphalt Co..... 2
Cowell Lime & Cement Co..... —
Riverside Portland Cement Co. Back Cover
Standard Oil Co..... 12
Standard Portland Cement Corp...4 and 5

PIPE, INGOT IRON CORRUGATED
Corrugated Culvert Companies..... 8

PIPE, RIVETED STEEL AND IRON
Hendy Iron Works, Joshua..... 5
Pelton Water Wheel Co..... 17
Western Pipe & Steel Co..... 14

PIPE, WOOD
Pacific Tank & Pipe Co..... 18

POWER PLANTS
Busch-Sulzer Broz.—Diesel Engine Co.. 4
General Electric Co..... 7
Hendy Iron Works, Joshua..... 5
Moore, Chas. C. & Co., Engineers..... 6
Westinghouse Electric & Mfg. Co..... 3
Wheeler, F. R..... 19

PUMPS
American Well Works..... 13
Hendy Iron Works, Joshua..... 5
Jackson Iron Works, Byron..... 16
Krogh Pump Mfg. Co..... 17
Moore, Chas. C. & Co., Engineers..... 6

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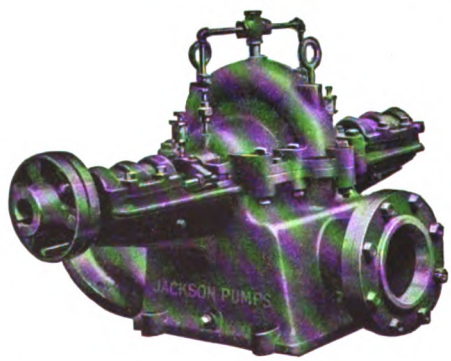

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Original from UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

	Page.
Pelton Water Wheel Co.	17
Wheeler, F. R.	19
Yuba Construction Co.	9
ROAD OILS	
California Oil & Asphalt [illegible]	2
Standard Oil Co.	12
SEWER DITCHING MACHINES	
Ware, R F.	15
SEWER PIPE	
Corrugated Culvert Companies.	8
Pacific Tank & Pipe Co.	18
TANKS, WOOD	
Pacific Tank & Pipe Co.	18
TRACTION DITCHING	
Ware, R. F.	15
TRACTORS	
Yuba Construction Co.	9
TRANSMISSION MACHINERY	
General Electric Co.	7
Hendy Iron Works, Joshua.	5
Westinghouse Electric & Mfg. Co.	3
TURBINES, HYDRAULIC	
General Electric Co.	7
Hendy Iron Works, Joshua.	5
Krogh Pump Mfg. Co.	17
Moore, Chas. C. & Co., Engineers.	6
Pelton Water Wheel Co.	17
Westinghouse Electric & Mfg. Co.	3
TURBINES, STEAM	
General Electric Co.	7
Kerr Turbine Co.	19
Moore, Chas. C. & Co., Engineers.	6
Westinghouse Electric & Mfg. Co.	3
Wheeler, F. R.	19
WATER MAINS	
Corrugated Culvert Companies.	8
Pacific Tank & Pipe Co.	18
Western Pipe & Steel Co.	14
WATER WHEELS	
Hendy Iron Works, Joshua.	5
Krogh Pump Mfg. Co.	17
Pelton Water Wheel Co.	17

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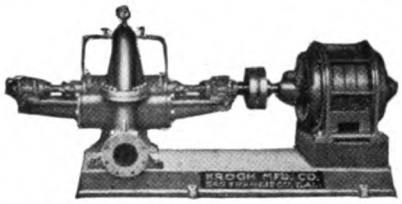

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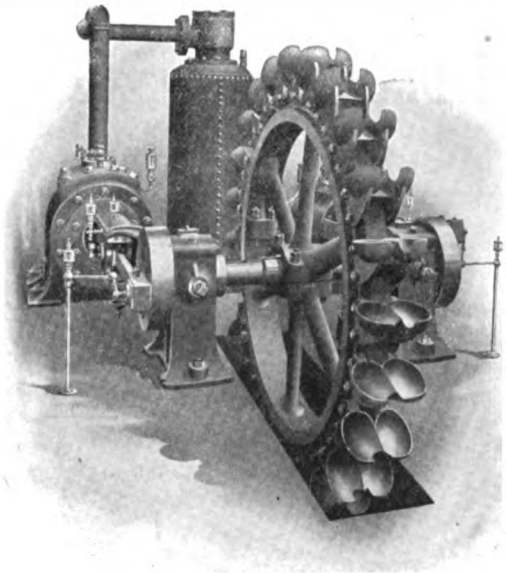

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INDEX TO ADVERTISERS

Buyers' Directory Page 14

	Page.
AMERICAN WELL WORKS	13
BURGER, B. E.	15
BUSCH-SULZER BROS.—DIESEL ENGINE CO.	4
CALIFORNIA OIL & ASPHALT CO.	2
CORRUGATED CULVERT COMPANIES	8
COWELL LIME & CEMENT CO.	—
FULTON ENGINE WORKS	11
GENERAL ELECTRIC CO.	7
HENDY IRON WORKS, JOSHUA	5
HUNT & CO., ROBERT W.	11
JACKSON IRON WORKS, BYRON	16
KERR TURBINE CO.	19
KROGH PUMP MFG. CO.	17
MOORE & CO., CHAS. C., Engineers	6
PACIFIC CEMENT-GUN CO.	—
PACIFIC TANK & PIPE CO.	18
PELTON WATER WHEEL CO.	17
RIVERSIDE PORTLAND CEMENT CO.	Back Cover
RUGGLES MACHINE CO.	18
SANTA CRUZ PORTLAND CEMENT CO.	—
STANDARD OIL CO.	12
STANDARD PORTLAND CEMENT CORP.	4 and 5
WARE, R. F.	15
WESTERN PIPE & STEEL CO.	14
WESTINGHOUSE ELECTRIC & MFG. CO.	3
WHEELER, F. R.	19
YUBA CONSTRUCTION CO.	9

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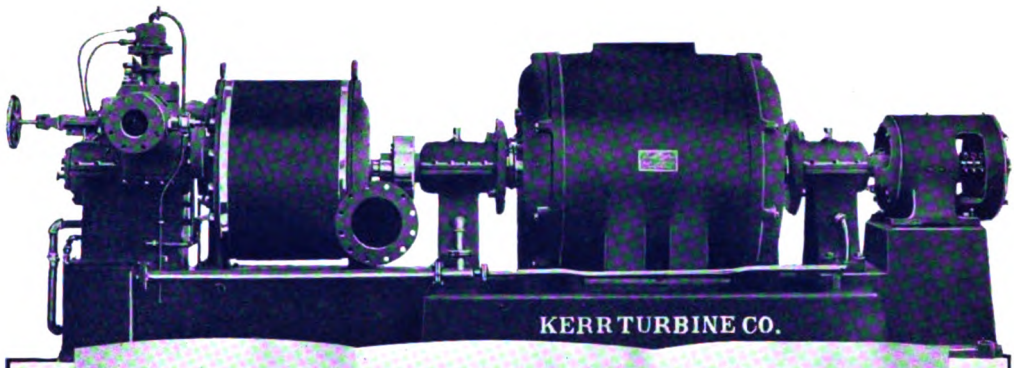

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